FIN 3331 Critical Thinking Skills Assignment

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Emily Smith just received a promotion at work that increased her annual salary to $42,000. She is eligible to participate in her employer’s 401(k) retirement plan to which the employer matches, dollar for dollar, workers’ contributions up to 5% of salary. However, Emily wants to buy a new $25,000 car in 3 years, and she wants to have enough money to make a $10,000 down payment on the car and finance the balance. Fortunately, she expects a sizable bonus this year that she hopes will cover that down payment in 3 years.

A wedding is also in her plans. Emily and her boyfriend, Paul, have set a wedding date two years in the future, after he finishes medical school. In addition, Emily and Paul want to buy a home of their own in 5 years. This might be possible because two years later, Emily will be eligible to access a trust fund left to her as an inheritance by her late grandfather. Her trust fund has $80,000 invested at an interest rate of 5%.

1. Justify Emily’s participation in her employer’s 401(k) plan using the time value of money concepts by calculating the actual annual return on her own contributions. She will contribute $1,000 per year to her 401(k) for 25 years and the employer will match dollar for dollar. Assume that her 401(k) earns 6% per year for 25 years and all contributions are made at the end of each year.

> PMT is $1,000 and she earns 6%6per year for 25 years, so I/Y is 6 and N is 25.

Therefore, FV is $54,864.5120. Finally, the actual annual return will be $2,914.5805, because 54,864.5120/25 is 2,914.5805.

1. Calculate the amount of money that Emily needs to set aside from her bonus this year to cover the down payment on a new car, assuming she can earn 4% on her savings. What if she could earn 10% on her savings?

> The down payment is $10,000, and the interest of her saving is 4%. The period is 3 years. Therefore, FV=10,000, N=3, I/Y=4, so the payment will be $3,203.4854.

Furthermore, if she could earn 10% on her savings, the payment will be $3,021.1480.

1. What will be the value of Emily’s trust fund in 36 years, assuming she takes possession of $20,000 in 2 years for her wedding, and leaves the remaining amount of money untouched where it is currently invested?

> First, she takes possession of $20,000 in 2 years for her wedding, at this time, PV= -80,000, I/Y=5, N=2. When second year, the amount of money is $88200.0000. She takes possession of $20,000, so 88200-20000= 68200.00. Finally, 68200 is PV of second year and N is 34 (from 2 year to 36 year) I/Y is 5. The remaining amounts of money will $358,278.3315.

1. Suggest at least two conditions that Emily and Paul could take to accumulate more for their retirement.
2. Invest her trust fund money ($80,000) to 401(k) retirement. The 401(k) retirement’s interest is 6% year, so she will get higher return.
3. Or if she does not take money from Trust Fund, her future value will be bigger than if she takes money from trust fund for her wedding.
4. Suppose that Emily and Paul purchase a $200,000 home in 5 years and make $40,000 down payment immediately. Find the monthly mortgage payment assuming that the remaining balance is financed at a 3% fixed rate for 15 years. What if its mortgage term is 30 years?

> Emily and Paul purchase a $200,000 home in 5 years and make $40,000 down payment immediately. So their present value is $160,000, N is 15 and I/Y is 3. Their monthly payment for 15 years is (N is 180 and I/Y is 0.25) $1,104.9306.

Furthermore, if its mortgage term is 30years, N is 360, I/Y 0.25 PV is -160,000. Therefore, the monthly payment for 30years is $674.5665.

1. What can you conclude about the relationship between the mortgage term and the amount of the monthly payment? From Question 5, is the monthly payment with the 30-year term half as large as the monthly payment with the 15-year term? Explain.

> A 30-year tern can make their monthly hose payment more affordable. If its mortgage term is 30years, their monthly payment is only $674.5665, but if its mortgage term is 15years, their monthly payment is $1,104.9306. They should pay 0.6 more times than 30year.

Use the following information to answer the following questions.

 **ABC, Inc. Income Statement (in thousands)**

 December 31, 2014

Sales $200,000

Cost of goods sold 140,000

Gross profit on sales 60,000

Operating expenses 56,000

Operating income (EBIT) 4,000

Interest expense 1,000

Earnings before tax 3,000

Income tax 1,050

Net income available to common stockholders $1,950

Number of shares outstanding 1, 500

Market price per share $22

 **ABC, Inc. Balance Sheet (in thousands)**

 December 31, 2014

Assets

Cash $2,000

Accounts receivable 17,800

Inventories 8,700

Total current assets 28,500

Gross fixed assets 70,000

Accumulated depreciation 26,500

Net fixed assets 43,500

Total assets $72,000

Liabilities and Equity

Accounts payable $18,000

Accruals 13,350

Total current liabilities 31,350

Long-term debt 8,250

Total liabilities 39,600

Common stock (par value and paid in capital) 2,000

Retained earnings 30,400

Total stockholders' equity 32,400

Total liabilities and equity $72,000

**Industry Key Ratios**

 Industry Average Ratios

Current ratio 1.1

Quick ratio 0.60

Days Sales Outstanding (DSO) 25 days

Fixed assets turnover 5.8

Total asset turnover 2.95

Liabilities-to-assets ratio 65%

Times-interest-earned 3.2

Net profit margin 1.3%

Return on equity 7.32%

Price/earnings ratio 20.38

Market/book ratio 3.19

1. Calculate current ratio and acid test ratio for the firm.
2. Current ratio is current assets/ current liabilities

Therefore, Current ratio = current assets (28,500)/ current liabilities (31,350)

= 0.9091

1. Acid test ratio is (current assets – Inventories)/Current liabilities.

Therefore, (28,500-8700)/31,350 = 0.6316

1. Calculate DSO, fixed assets turnover, and total asset turnover for the firm.
2. DSO is Receivables/ (Annual sales/365). So, 17800/ (200,000/365) = 17800/547.9452.

The Days Sales Outstanding is 32.4850days.

1. Fixed assets turnover can find from sales/ net fixed asset. So, 200,000/43,500 is 4.5977.
2. Total asset turnover for the firm can find sales/ total asset. Therefore, total asset turnover is 200,000/72,000 is 2.7778.
3. Calculate liabilities-to-assets ratio and times-interest-earned ratio for the firm.
4. Liabilities to assets ratio is total liabilities/ total assets (39,600/72,000). So the answer is 0.5500.
5. TIE is that EBIT (4,000) divided by Interest charges (1,000) is 4.

1. Calculate net profit margin and return on equity for the firm.
2. Net profit margin is that Net income (1,950) divided by Total assets (72,000) is 0.0271.
3. Also return on equity for the firm is that net income divided by common equity. Common equity includes common stock and retained earnings.

Finally return on equity for the firm is 0.0602.

1. Evaluate the performance of the firm in the following areas:

Liquidity management (Current ratio and Quick ratio)

Asset management (DSO, FAT, TAT)

Debt management (Liabilities-to-assets ratio and times- interest- earned)

Profitability management (Net profit margin and return on equity)

When you explain the firm’s strength or weakness in each area, you must support your arguments through the evaluative reasoning process by providing reasons, methods, criteria, or assumptions behind the claims made.

>In the case of Liquidity management, current ratio is 0.9091, so it is poor and Quick ratio 0.6316, so it is bigger than 0.6 (industry key ratios). Therefore, quick ratio is fair.

In the case of Asset management, DSO is 32days but The Days Sales Outstanding of industry is 25days, so it is poor, moreover, fixed asset turnover is also poor because industry key is larger than firm’s ratio. Total asset is same with fixed asset’s performance.

Debt management, Firm’s liabilities to assets ratio is 55%, and the industry liabilities to assets ratio is 65%. Therefore, it means low risky. In addition, Times-interest-earned, the firm’s TIE is 4, and industry’s TIE is 3.2, so the firm’s TIE is high, it is not risky.

The case of profitability, profit margin is good because the firm’s profit margin is larger than industry’s its (2.71%>1.3%). On the other hand, ROE shows poor performance; because industry’s ROE (7.32%) is bigger than firm’s performance as 6.02%.

1. Deductive reasoning starts with a general principle and deduces that it applies to a specific case. Deductive reasoning moves with exacting precision from the assumed truth of a set of premises to a conclusion which cannot be false if those premises are true. Explain the deductive reasoning process applied to analyze the firm’s performance.

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Deductive reasoning draws specific conclusions from general principles or premises. For example, Human must die > >Socrates is human > >Socrates must die.

Current ratio is higher the better. Firm’s current ratio is low. Therefore, firm’s current ratio is not better.

 Quick ratio is higher the better. Firm’s quick ratio is higher. Therefore, Firm’s quick ratio is better.

 DSO ratio is lower the better. Firm’s DSO ratio is higher. Therefore, Firm’s DSO is not good.

Fixed assets turnover is higher the better. ABC’s fixed assets turnover is lower. Therefore, ABC’s fixed assets turnover is not better.

 Liabilities- to- assets ratio is not risky when low. ABC’s liability- to assets ratio is low. So, ABC’s liabilities- to- assets ratio is not risky.

TIE is higher is not risky when the ratio is high. The firm’s TIE is high. So, the firm’s TIE is not risky.

Net profit margin is better the higher. ABC’s profit margin is higher. Therefore, ABC’s profit margin is better.

 ROE is better the higher. The firm’s ROE is lower. So, the firm’s ROE is not better.